



## **A brief status of Wild Steelhead Populations in Western Washington and the need for Conservation rule changes in 2013**

*There is no record of a major fisheries management scheme that was not introduced in an atmosphere of desperation after the evidence of severe depletion had become too obvious for any explanation other than overfishing. James A. Crutchfield, 1969.*

One would think that through time we would learn to manage our fisheries to sustain during increasing effort and harvests. But have we really learned? The Wild Steelhead Coalition (WSC) asserts that we have not, based on the stock declines and Endangered Species Act (ESA) listings that have occurred in our state in recent years. Rather we find the future of wild steelhead in Washington is clearly in peril. This short paper briefly discusses the recent state of wild steelhead stocks in western Washington and rule changes that should be enacted now to avoid the obvious depletion that will soon occur to the few remaining healthy stocks on the Olympic Peninsula.

Two major changes occurred in 2007 that have altered the state of wild steelhead management and stock condition in Western Washington. The first action occurred on May 11, 2007, when the National Oceanic and Atmospheric Administration (NOAA) listed the Puget Sound wild steelhead stocks as Threatened under the ESA. Four of the WA Distinct Population Segments (DPS) were listed earlier as threatened: Upper Columbia River in Aug 1997; the Snake River Basin in Aug 1997; the Middle Columbia River in March of 1999; and the Lower Columbia River in March of 1998. Although the Puget Sound stocks had been in steep decline the previous 15 or so years (please see attached graphs for the Skagit, Stillaguamish, Snohomish, Green, Cedar, Nisqually and Puyallup Rivers), Washington Department of Fish and Wildlife (WDFW) objected to this listing to NOAA stating that ESA action was not necessary as the stocks were healthy. Since that listing, Puget Sound stocks have fallen to lows that are either functionally extinct or in continuous decline, even though they are closed to wild steelhead fishing. Puget Sound stocks, as well as those on the Olympic Peninsula coast, continue to be negatively impacted by large hatchery releases, habitat damage, climate change and a lack of management actions to protect and recover genetic diversity, distribution and productivity. The Wild Steelhead Coalition petitioned the WDFW years prior to the Puget Sound listing through reports and regulation change proposals to make important changes in management in the early 2000s including catch and release only fisheries and improved diversity management. WDFW



continued to tell us that the Puget Sound stocks would recover when ocean conditions improved.

The second major change in 2007 was the beginning of a large movement of wild steelhead fishing effort from Puget Sound metropolis and other Washington areas to the coastal Olympic Peninsula rivers. At this point in time the Olympic Peninsula rivers became the only areas where fishers could harvest a wild steelhead and this was a large draw from Washington and other western states. This increase in catch and effort on the Olympic Peninsula has not been an overnight occurrence; however, WDFW has never monitored river specific or total sport effort of the coastal steelhead fishery to understand the periodic timing or magnitude of this effort change and its management implications. Many of us have noted a large increase in effort on the coastal rivers during this period. As example, observations by me and fishing associates indicate there were about four to six boats (sport and guide) on a given fishing drift (approximately five miles of river) in the early 2000s, about 15 to 20 in the mid- years, and 40 to 50 or more on a given drift today. Added to the changing sport effort was a major increase in guides operating from Forks that came from Puget Sound, the Columbia River tributaries and other western states.

The Olympic Peninsula steelhead stock picture today is showing a declining trend similar to those seen in Puget Sound stocks in the early 90s and 2000s prior to the ESA listing; however, these declines are not as steep and can still be reversed with management changes at this time. The runs also show considerable cyclic nature, a natural phenomena associated with weather driven riverine and ocean productivity cycles, and this adds to the uncertainty and complexity of Maximum Sustainable Harvest management. Over the last 30+ years each high abundance cycle is lower than the past one, and each low cycle is also lower than those of the past. Olympic Peninsula run abundance graphs (attached) indicate that during the next low we may find these runs consistently below their escapement goals. This spawner deficiency has already occurred on the Hoh River during the last two lows (this stock has missed its escapement goal in 10 of the last 20 years) and in the Queets (missed seven out of last 20) in respect to the WDFW escapement goal (the WDFW modeled goal is 4,200; the Quinault Tribe claims the goal should be 2,500). The recent lows may also be harvest and effort affected which would explain why they differ between rivers and the rapid changes in the Quillayute abundance. It is both surprising and highly questionable that WDFW senior managers have stated that the stock declines and effort increases are not a conservation and management issue today.



Graphs of coastal rivers (attached) show major declines over time in the coastal river systems. The Hoh River has dropped from a stock abundance in the 1950s of 8,000 to 13,000 wild fish to about 5,000 in the mid- 1980s and to about 3,600 fish today (using five year averages from WDFW data and other reports). The Queets has declined from about 10,000 wild fish in the 1980s to about 7,000 today. The Quillayute maintained its annual abundances similar to the mid-1950s until the early 2000s with several years runs above 20,000 fish and then dropped precipitously to below its spawner escapement goal (established escapement goal is 5,900) in 2009 to 4,733 fish, by far its lowest annual abundance over recorded history. The Quillayute has shown recent improvement but the decline of the last decade indicates that lows on this river will now also occur and can be depleting. The Quinault River is managed by the Quinault tribe who have not shared run data since 2004; but suffice it to say that this river also shows a long term decline from the data available through 2004, falling from 19,000 wild fish in 1952, to about 10,000 in the mid-1980s, to a run size today of about 5,500 fish. Because there has been a major turnover in top managers every few years in WDFW, we find that new people often become victims of the “Shifting Baseline Syndrome”; meaning that they accepted the state of the resource at the point they took office and are not willing to address the historical or recent declines or attempt management change to improve runs.

One rule that should be maintained in any ecosystem or species management program system is – if you are going to manage for a harvest you should be certain to maintain all of the parts i.e., the important genetic/biological components. However, managers still use spawner recruit models designed long ago (the basic spawner-recruit modes were developed in the 1950s) and have neglected the species diversity, distribution and even the changing productivity. The WDFW concept for success is making the modeled spawner escapement and this appears to be the only metric they watch closely. Missing in their considerations of stock health is an evaluation of the total abundance (which we think is of high importance), changes in life history characteristics (genetic in particular) and changes in spawning areas. Today’s diversity losses include most of the early run of December, January and February which once averaged 55% to 95% of the total winter run and is now at about 25%; and the large spawning population of resident steelhead (rainbow trout) which has accounted for up to 40% of the male spawners in some rivers. As the Puget Sound and Olympic Peninsula stocks have declined, important diversity components were ignored and have been greatly reduced.

One of the major threats from sport fishing is impacts from catch and release mortality. Fish released will have an average mortality rate between three and 14% based on several recent studies. Probably the best study results due to a large sample size was conducted on Skeena



River summer steelhead in British Columbia (BC) which projected a 10% mortality rate. The study also showed that bait produced the highest mortality rate, various types of spoons and jigs were intermediate and artificial fly's the lowest rate. The problem with bait is that fishers often allow the hook/bait to be taken deep or even swallowed before striking and hook the fish in the gills or deep in the throat and cause lethal bleeding. With barbed hooks these fish are difficult to release and many die from longer handling as well as blood loss. The 14% rate was found in the Samish River, Washington, and is one of the few studies on winter fish anywhere. Some biologists believe that winter fish will have a lower mortality rate than the Skeena summer fish as they are in colder water. However, the temperatures of the Skeena River and its major tributaries are very similar to Washington rivers; they normally drop to 50 degrees by August and early September, 40 degrees in October when most fish are reaching their natal tributaries, and may even drop into the 30s by late October or November. Until a complete study (instantaneous mortality, delayed mortality, gear types and spawning impacts) of catch and release mortality rates is conducted on the Olympic Peninsula, the 10% rate is the best metric to use.

One example of the catch and release rate comes from the Hoh River. The number of released fish averages about 50% of the spawning stock but it does not include the number of hooked and lost fish. At a 10 to 14% immediate mortality rate, the Hoh River run is losing more than 120 to 170 caught and released wild steelhead each year. The 10% number does not include the delayed impacts including mortality, lost spawning abilities, and the reduced number of repeat spawners that will otherwise return in subsequent years. One estimate of delayed impacts in sockeye salmon about two weeks after escaping gill nets was about 14% in an Alaska gill net fishery. Although not closely comparable, the study does provide us insight into delayed mortality losses.

British Columbia has been proactive in protecting wild steelhead as they have experienced similar increases in sport and commercial fishing effort just like Washington. In 1989, BC eliminated the wild steelhead possession limit, turning solely to catch and release for sport fishing. During the same period they banned bait on all tributaries to the Skeena River and the use of boats for fishing on most of these rivers. They also allow only single barbless hooks for steelhead. This year they took another large step to further protect wild steelhead runs in recognition of their high economic and social value and the increasing fishing effort; they closed sport fishing for steelhead to foreign fishers on Saturdays and Sundays on the Skeena River and most of its tributaries.



British Columbia closes steelhead fishing on December 31, within a short time after most summer steelhead have reached their winter holding areas, even though these fish will not spawn until the following spring. They also charge a daily foreign fisher fee of \$20 to \$40 dollars on top of their expensive out of country license. Bob Hooton, highly respected and recently retired biologist who was the lead Provincial Steelhead Manager for the Skeena River System, has communicated that one of the larger problems that the BC government faces in maintaining wild steelhead populations is the increasing sport fishing encounter rate and the total annual catch and release mortality.

Recognizing the declining Western Washington stocks, the rapid increases in fishing pressure on the Olympic Peninsula coast, and knowledge of interception mortality rates, we believe it is past time to make important changes in the rules governing wild steelhead fishing. The WSC and several other conservation organizations recommended a number of rule changes to reduce these impacts during this year's rule proposal process but all were turned down by WDFW in the written statements *"is typically not a tool used to address conservation objectives---(and)---currently wild steelhead are meeting escapement in this river"* and later the verbal statement in a WDFW Steelhead and Cutthroat Public Advisory Group meeting of *"not necessary for conservation"*. However, the stock graphs indicate that the coastal runs will continue to decline under the heavy and increasing fishing pressure and be much more difficult to manage and rebuild in the future. In the rules process, the WSC advocated for changes to improve the protection of holding and spawning early and late run wild fish, reduce hooking mortality, and also, a rule change not previously discussed in this paper, to reduce the number of out-of-basin (segregated) hatchery fish spawning in Washington waters. These proposals included:

1. Making some upriver spawning and holding areas bank fishing only after March 1 (boats can continue to be used for transportation but not fishing). These areas include an upriver stretch on each of the Hoh and the Sol Duc Rivers. Boat fishers are much more effective in accessing and casting into all steelhead holding sites while floating rivers. Early run winter steelhead spawn in these areas beginning in late February through March and are then followed by late run spawners. The early runs once dominated the winter run abundances but the mixed stock fisheries with hatchery fish beginning in the 1960s encouraged excess harvest of the early fish and they have declined through time to a depleted state. These early run wild steelhead present one of the best opportunities in Washington coastal and Puget Sound waters to rebuild winter steelhead run abundances. The boating fishing closures we suggest were designed to work with the no harvest closures of December, January and the first half of February (enacted at our regulation



- suggestion in 2009) to provide these early run stocks an improved opportunity to survive, spawn and recover through time.
2. Eliminating barbless hooks year-round and allowing only selective gear (only artificial gear with single barbless hooks) after February 15. These rules would significantly increase the survival of all hooked and released wild fish from both the early and late runs. In reality, bait should also be eliminated entirely; however, this is a cultural as well as conservation change that probably should be saved until these important proposed changes are established. The use of selective gear and barbless hooks has been a major part in the evolution of recreational fisheries management as effort and catch increases; it has become a very successful measure in many other fisheries, and there are too many examples in other states, providences, and countries to mention here.
  3. Making it mandatory to keep all caught hatchery steelhead. The justification for this is based on many recent studies on natural spawning steelhead hatchery fish that have shown high genetic, productivity and ecological impacts to wild steelhead populations.

**The rule proposals submitted by the WSC and other conservation organizations are attached. We reduced the number of proposals to the most important five (from the original 11) to continue our advocacy to address protection of holding and spawning fish and hooking mortality.**

Absent from the above discussion are the increasing impacts from climate change including reduced summer habitats due to low flows, increasing water temperatures, flooding and decreased ocean productivity, including ocean acidification. Steelhead, as other wild salmonids, will need to genetically adapt to these changing conditions. Striving for a larger abundance of healthy stocks with a full complement of their diverse genetics would seem the best strategy for assuring wild steelhead stand a chance of surviving global and regional weather changes.

WDFW appears to believe that the limited boat fishing closures will create conflict between shore and boat fishers; however, if that is the case, it already exists. The major conflict today would appear to be between those that do not want any measures to change their fishing and those of us that are deeply concerned with the condition of the stocks and advocate conservation measures to prevent further declines, to rebuild the wild runs, and to continue to provide sport fishing opportunities.

The WSC proposed rule changes may not be adequate to completely reverse the declining runs, given the increasing fishing pressure. But the alternative within this decade may be the need for



either total fishing closures or early closure of all spawning and holding areas by March 1. This loss of opportunity would have major impacts on guides, shore and boat fishers alike as well as local economies. And if significant depletion comes, fishing as we know it today may end by late February when the hatchery run is over on virtually every steelhead stream in western Washington.

We kept this paper short as possible without much data and citations so it could be reviewed in a reasonable time. We would be pleased to furnish you any literature or citations related to the statements in this paper. We would also be very open to meeting with you or a telephone call to discuss these proposed rule changes and answer any questions you may have. Although WDFW turned down the proposals that we submitted, we are hoping the Commission will recognize their importance to stemming further declines of wild steelhead in Western Washington waters and include the five proposals we continue to recommend for changes in steelhead fishing rules for the 2012/13 season. An option that the Commission may consider is to hold a special discussion and rule change session on steelhead in 2013.

Thank you for your time in reviewing our concerns.

Sincerely,

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